L-1

PROLINK

User's Manual And Program Specification

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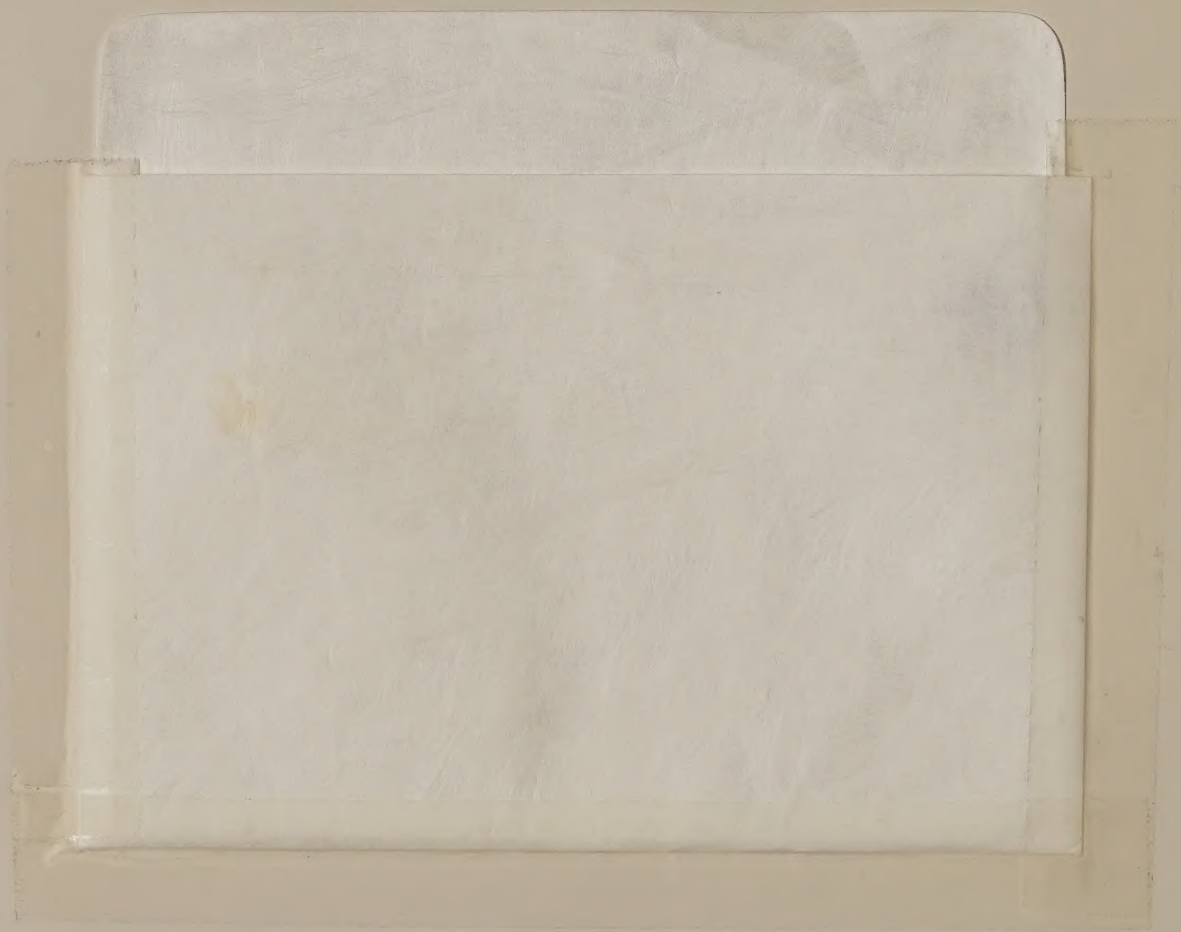

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ILLUSTRATIONS FOR RS-232 CONNECTIONS

FOR PROPER OPERATION OF COMMUNICATIONS BETWEEN A COMPUTER AND A PROGRAMMER USING PROLINK, THE FOLLOWING CONNECTIONS SHOULD BE USED:

CONNECTIONS FOR PROMPRO-8X AND GANGPRO-S SERIES

PROGRAMMER DB25		PC/AT DB25	PROGRAMMER DB25		PC/AT DB9
(RX) 2	<--------	2 (TX)	(RX) 2	<--------	3 (TX)
(TX) 3	-------->	3 (RX)	(TX) 3	-------->	2 (RX)
(CTS) 4	<--------	4 (RTS)	(CTS) 4	<--------	7 (RTS)
(GND) 7	<-------->	7 (GND)	(GND) 7	<-------->	5 (GND)

Note: The PromPro8x has a cable attached prewired for connection to PC/AT with DB25 connector as above.

CONNECTIONS FOR PALPRO-2X AND GANGPRO-8

PROGRAMMER DB25		PC/AT DB25	PROGRAMMER DB25		PC/AT DB9
(RX) 3	<--------	2 (TX)	(RX) 3	<--------	3 (TX)
(TX) 2	-------->	3 (RX)	(TX) 2	-------->	2 (RX)
(CTS) 5	<--------	4 (RTS)	(CTS) 5	<--------	7 (RTS)
(RTS) 4	-------->	5 (CTS)	(RTS) 4	-------->	8 (CTS)
(GND) 7	<-------->	7 (GND)	(GND) 7	<-------->	5 (GND)

Note: The connections above are the same as a "Null Modem" connection.

CONNECTIONS FOR SHOOTER

PROGRAMMER RJ11		PC/AT DB25	PROGRAMMER RJ11		PC/AT DB9
(TX) 1	-------->	3 (RX)	(TX) 1	-------->	2 (RX)
(CTS) 2	<--------	4 (RTS)	(CTS) 2	<--------	7 (RTS)
(GND) 3	<-------->	7 (GND)	(GND) 3	<-------->	5 (GND)
(RX) 4	<--------	2 (TX)	(RX) 4	<--------	3 (TX)

Note: The above connections are for wiring directly to the RJ11 CONNECTOR on the back of the Shooter. If the RJ11/DB25 ADAPTER is being used - see the instruction sheet with the adapter for internal wiring of that adapter.

1. Introduction

PROLINK software is intended to provide the user a friendly environment when working with programmers developed from Logical Devices, Inc. such as PROMPRO 8X, PALPRO 2X, SHOOTER, GANGPRO and more programmers that will be released in the future. PROLINK is designed to provide the user with full screen menus for most of the commands so that all options available to the user at that screen level will be displayed right on the screen. And also a brief functional description of the command will be displayed in the message window area. File operations are also made easy with routines that display the files under specified directory and selec the desired file using the cursor keys.

2. ORGANIZATION OF THE SOFTWARE

The following table shows the list of files that are included in PROLINK.

PROLINK.EXE	PROLINK executable program
PROLINK.CFG	PROLINK configuration file
PROMEDIT.OVR	PROM/EPROM type editor overlay file
PALEDIT.OVR	PLD type editor overlay file
INT_LOAD.OVR	Intel HEX up/down load overlay file
MOT_LOAD.OVR	Motorola HEX up/down load overlay file
JED_LOAD.OVR	JEDEC up/down load overlay file
ASC_LOAD.OVR	ASCII HEX up/down load overlay file
BIN_LOAD.OVR	Binary up/down load overlay file
XFER.OVR	Data transfer overlay file
PPRO8X.CMD	Prompro 8X command file
PPRO2X.CMD	Palpro 2X command file
SHOOTER.CMD	Shooter command file
GANGPRO.CMD	Gangpro command file
<name>.DB	Database file for each manufacturer

2.1. PROLINK.EXE file

This file contains the code for the PROLINK software. To invoke it, type "prolink" from the DOS prompt.

2.2. PROLINK.CFG file

This file contains the start up configuration of PROLINK. In this file you can specify communications parameters such as baud rate, comm port and also the directory of HEX or JEDEC files that you want to down load. Comments are allowed in the configuration file. If a line contains a semicolon ';' in the first column, that line will be ignored. The following lists the parameters that can be specified in PROLINK.CFG:

1. Programmer selection
2. Library path
3. Working directory path
4. Communication Line
5. Baud Rate
6. Parity
7. Stop Bits
8. Data Bits
9. Device Initialization
10. Library Name
11. Device Name

2.2.1. Programmer selection

An integer number from 0 to 4 representing the programmer must be chosen.

0 = Prompro 8X
1 = Shooter
2 = Palpro 2X
3 = Gangpro
4 = 8X- PLM2

2.2.2. Library path

This is a specification of a directory where the database files (<name>.DB files) and the overlay files (<name>.OVR) are located.

example:
C:\PROLINK (drive C, directory PROLINK)
DEFAULT (current directory)

2.2.3. Working Directory Path

This specifies the directory path where files to be downloaded are located. Uploaded files, which are created by PROLINK, will also be created in this directory.

example:
C:\HEX (drive C, directory HEX)
DEFAULT (current directory)

2.2.4. Communication Line

Either COM1: or COM2:.

2.2.5. Baud Rate

Must be one of the following:
300, 600, 1200, 2400, 4800, 9600

2.2.6. Parity

Must be EVEN, ODD or NONE.

2.2.7. Stop Bits

Must be either 1 or 2.

2.2.8. Data Bits

Must be either 7 or 8.

2.2.9. Library Name

This specifies the 6 character library code (type code and manufacturer code). This code is the first 6 characters of the database file name. Code for Generic EPROM library will be 'EPRGEN'. (you will see a database file named EPRGEN_D.DB in the list of database files)

example:

EPRGEN	(Generic EPROM library)
PLDMMI	(MMI PLD's library)
NONE	(no library to be chosen automatically)

2.2.10. Device Code

This specifies a particular device in the library chosen above. This is a 5 digit code which identifies the device.

example:

10316	(2764A in the Generic EPROM library)
NONE	(no device to be chosen)

2.3. Operation in Progress Flag Of PROLINK

When an operation is executed from the Main Menu (such as Load Device), internal flag in PROLINK will be set to indicate that an operation is in progress. This flag will stay set until a prompt (usually a "*") is received. While the operation is in progress and if you try to execute another operation by typing the first letter of the option, PROLINK will display "*** programmer is busy ***" message to let you know that another operation cannot be done. Although you will not be allowed to issue another operation to the programmer, the following keys will be active for transmission:

Space Bar: This key will send space character(ASCII 20 hex) to the programmer.

Enter Key: This key actually sends a carriage return character (ASCII 13 hex) to the programmer instead of executing the operation the highlight is on. (Pressing first upper case letter of an option will still execute that operation) Also see section on Notes to Palpro 2X/PLM-2 users.

F1 Key: This key clears the "operation in progress" flag. If the programmer is turned off while

operation is in progress, you must press F1 key to let PROLINK know that programmer is in ready mode.

2.4. 'Waiting for CTS' message

Sometimes you will see 'Waiting for CTS' message displayed on the top line of the message window. This message means that the programmer is inhibiting Prolink from sending any characters. You may also see this message if the RS-232 cable is not connected. Pressing ESCape key will clear this message.

Since some of the programmers (Prompro 8X, Shooter) do not support CTS line, PROLINK will ignore the CTS line and the message will never be seen if Prompro 8X or Shooter is selected even if the RS-232 cable is not connected.

3. MAIN MENU

PROLINK is arranged so that most of the commonly used commands will be in main menu. But some of the commands are under various sub-menus. An option from any menu can be chosen by using the cursor keys to move the highlight to the desired option and hit enter key - or press the first capital letter in that option line. Usually, the first capital letter is the first character. The main menu looks like:

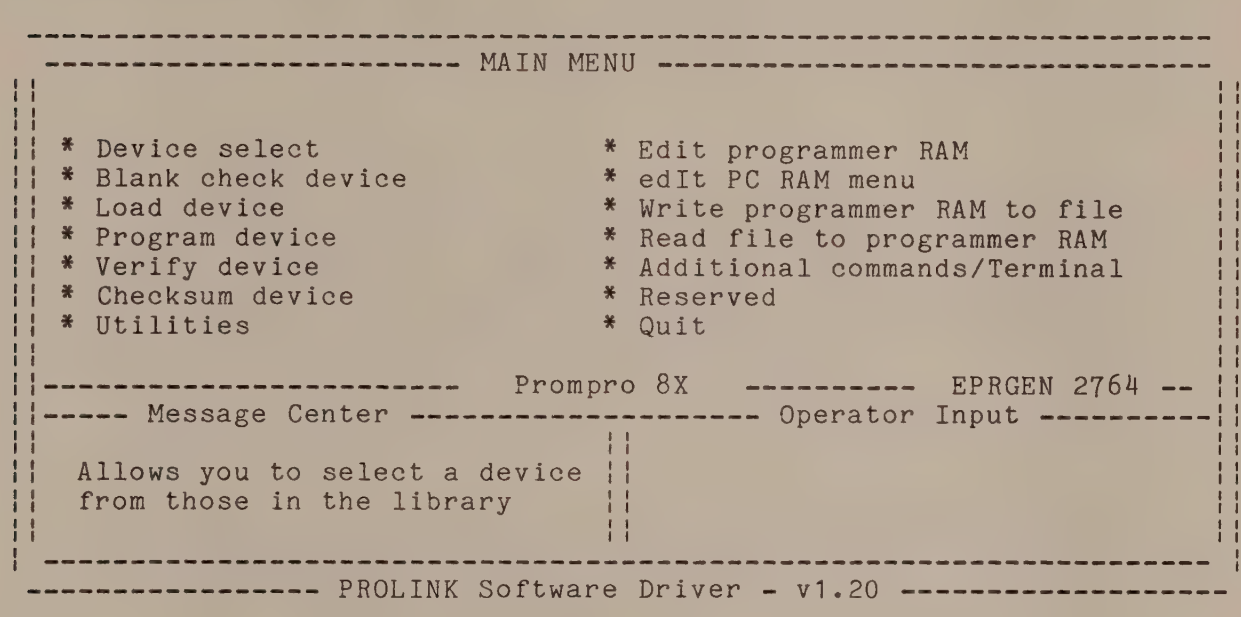

Fig. 3-1: Main Menu

3.1. Device Select

Device selection involves a two level process. The first requires the library expected to contain the device be selected. 'Choose device library' displays each set of library files found. The disk drive and the directory searched for library files may be specified in a utility menu operation. Initially this path is the path specified in the configuration file. To select a library, either point to the desired selection, then press RETURN, or key in the first six letters of the device library file name.

The second step requires the specific device be designated. This step may either be 'pointed to' on the screen, or the device code

may be keyed in from the keyboard. Device code is a 5 digit number which uniquely identifies a device.

Formats used for library file names and device codes are detailed in the library codes chapter of this manual.

* Choose library and device
* Select device
* Return to main menu

Fig. 3-2: Device Selection Guide

3.1.1. Choose Device Library

Prior to selecting a device, a device library must be chosen. Each device library contains details relating to a series of programmable components. Generally, each contains related or similar devices from a single manufacturer. For example, MMI PAL20 & PAL24 are included in one library, all EPROMs up to and including 27210 are included in a device library.

All libraries are referenced by 6 character library codes of type:

TTTMMM

where TTT = the device type. All devices are classified into 5 device types:

EEP : Electrically Erasable PROM's
EPR : UV Erasable PROM's
MIC : One chip microcontrollers with on board EPROM's
PLD : All Programmable Logic Devices
PRM : PROM's

where MMM = 3 character manufacturer name

When this operation is requested, a search for device library files is initiated. The search may take up to 15 to 20 seconds depending on the number of library files on the directory and the access time of the disk. To shorten the search time, 3 character device type can be entered while it is searching and all libraries under that device type will be displayed. For example: if 'PLD' is typed in followed by the Enter Key, PROLINK will search for all PLD libraries. After searching, libraries and their descriptions will be displayed on the main window in alphabetical order by the library names. To select a library, simply position the highlight bar to the desired selection and press the Enter Key. If desired, a 6 character library code may be entered to select a library.

Once a device library is selected, the library code is displayed on the bottom border of the main display area. Each library is

identified by the first six characters of library file name.

3.1.2. Select Device

When choosing a device, those contained in the currently selected library are listed in the main display area. Each line displays the internal device code as well as the name of the device and description of the device. If more devices are included in the library than can be displayed on the screen, additional devices may be displayed by pressing the PgDn, PgUp keys and the up/down arrow keys.

Selection is made by positioning the cursor at the desired device, and pressing the RETURN key.

As an alternative to locating the device in the displayed list, the device's identifying code may be entered from the keyboard. The format of this code is always a 5 digit number as mentioned earlier.
Only devices contained in the currently selected library may be chosen. If the desired device is not contained in the currently selected library, the correct library should be specified before attempting to choose the device.

3.2. Auto Selection of Device on the Programmer

After the device is selected on the screen, PROLINK will send appropriate character code(s) to the programmer to select the device. If it fails to select the device, a message will be displayed in the message window. If it succeeds the selected device will be displayed.

Note: for programmers which do not have the capability to select a device from the RS-232 line, you must follow the manual on that programmer to select the device. (This includes Shooter and Gangpro)

3.3. Blank check device

This option will send an appropriate character code(s) to the programmer to do the blank check operation. Result which is sent back from the programmer will be displayed in the message window.

3.4. Load device

This option loads the contents of the chip in the socket into the programmer's internal RAM. Any message sent back from the programmer will be displayed in the message window.

3.5. Program device

This option programs the chip in the socket with the data in the programmer's internal RAM. Any message sent back from the programmer will be displayed in the message window.

3.6. Verify device

This option verifies the contents of the chip in the socket against the data in the programmer's RAM. Any error or message will be displayed in the message window.

3.7. Checksum device

This option calculates the checksum of data in the programmer's RAM and displays the result in the message window.

3.8. Utilities

This option gives you another menu where you can select a programmer, change directories for downloadable files, ensure communications and suspend to DOS. The menu looks like:

* Programmer setup
* View working directory
* Specify library path
* Check communications
* DOS
* Return

Programmer setup option allows you to change:

- the programmer that you are working on
- Communication line (COM1: or COM2:)
- Baud rate (300 to 9600)
- Parity (EVEN, ODD or NONE)
- Stop bits (1 or 2)
- Data bits (7 or 8)
- Update

You can either update this setting permanently on the disk or just temporarily in memory. If permanently updated, PROLINK.CFG will be changed.

View working directory option displays the files under working directory. This is the directory that PROLINK will search when you are downloading a file. When you upload a file to the disk, that file will be created in this directory also. This working directory can be changed by typing in a new path. Sub directories (if any) are displayed in highlighted characters and the parent directory is displayed as ".." entry. To go to any sub directory or the parent directory, move the highlight block

using cursor keys to the desired entry and press enter key. This option is used for viewing the directory only. To download a file, you must use Read file option from the main menu.

Specify library path option allows you to change the library path. Library path is the path of the directory which contains the database files (<name>.DB files). You must type in the entire path of the directory.

Check communications option ensures that the communication between the programmer and the PC is working. It does this by sending a space character and wait for the prompt. If a prompt is not received within a few seconds it assumes that communications is not working.

DOS option allows you to suspend to DOS. To get back to PROLINK, you must type 'exit' from DOS. This feature is handy when you want to go out to DOS while the programmer is programming a device - which can take up to a few minutes. Whatever the programmer sends back to the PC will be automatically stored in the receive buffer and that buffer will be displayed in the message window when you get back to PROLINK. This feature can also be invoked from the main menu by pressing the ESCape key.

3.9. Edit programmer RAM

This option allows you examine the contents of the programmer's RAM and do modifications. This is the same as pressing EXAM on the keypad. You are prompted to enter an address in hex (or fuse number for Palpro 2X) and the contents of that address will be displayed. The contents can be changed by entering a new hex data or go to the next address by pressing the space bar. Hitting the enter key will quit editing and get you back to the main menu. This editing can only be done one byte at a time.

3.10. Edit PC RAM menu

This option gives you a sub-menu where you can do operations related to the PC's internal RAM. When PROLINK is invoked, a block of memory in PC's RAM is reserved for full screen editing features. To be able to edit the data, whether just browse through the data or modify the data, you must first load the PC's RAM with the data. And then you can use the PC RAM editor (full screen editor) to make any changes or just browse through the data. After editing is done, the data must be returned back to the originator. Edit PC RAM menu looks like:

```
* Edit PC RAM                    * Read file into PC RAM
* Download to programmer         * Write file from PC
* Upload to PC                   * Return
```

Fig. 3-3: Edit PC RAM Menu

Edit PC RAM option will invoke the editor which will bring up the data in the PC's RAM in the main window. If the device type is an PROM/EPROM, data will be displayed in two formats: HEX format and the equivalent ASCII format will be displayed on the right side of the screen. If it is a PAL type, fuse state of each fuse will be displayed. 0 = intact fuse; 1 = blown fuse.

Download to programmer option transfers the data from the PC's RAM to the programmer's internal RAM.

Upload to PC option will transfer the data from the programmer's internal RAM to the PC's RAM.

Read file into PC RAM option allows you to transfer data from a file in to the PC's RAM. The file can be in one of 5 different formats: Intel, Motorola, ASCII, Binary or JEDEC formats. The first 4 formats are used for PROM/EPROM types and the last format is used for PAL type only. The file that you want to read must be in the current working directory. (This is not necessarily the same as the directory from which you invoke PROLINK.) This directory can be changed using 'View working directory' option under Utilities. (see Utilities section)

Write file from PC option allows you to transfer data from PC's RAM onto the disk and save it under the name you specify. Like above section, you can save the file in one of 5 formats. Intel HEX, Motorola HEX, ASCII HEX, Binary or JEDEC. The first 4 formats are used for PROM/EPROM types and the last one is used for PAL type only. The file will be created in the current working directory. (This is not necessarily the same as the directory from which you invoke PROLINK.) This directory can be changed using 'View working directory' option under Utilities. (see Utilities section)

3.11. Write programmer RAM to file

This option transfers the data from the programmer's RAM onto the disk and save it under the file name you specify. The file will be saved in current working directory. (This is not necessarily the same as the directory from which you invoke PROLINK.) This directory can be changed using 'View working directory' option under Utilities. (see Utilities section). This option will send a command to the programmer to UPLOAD. The data sent from the programmer will be saved in a file. This feature is limited to the capabilities of a programmer. For example - Prompro 8X will only generate Intel or Motorola HEX formats. On the other hand, Palpro 2X will only generate JEDEC format. Error checking is

also done for all types of data transfer (HEX or JEDEC formats) to ensure the correctness of the transmission.

3.12. Read file to programmer RAM

This option will down load a specified file from current working directory into the programmer's RAM. (NOTE: PC's RAM is bypassed!) Reading into programmer's RAM will NOT update PC RAM. This option sends a command to the programmer to DOWNLOAD and then sends the file that you specify. The file that you want to read must be in the current working directory. (This is not necessarily the same as the directory from which you invoke PROLINK.) This directory can be changed using 'View working directory' option under Utilities. (see Utilities section)

3.13. Additional commands/Terminal

This option will put PROLINK in a 'dumb' terminal mode. Whatever key you hit will get sent out to the programmer. (It will automatically get capitalized because sometimes programmers do not understand lower case letters) You should be cautious about some of the commands such as 'select device' (command code = S) because if you re-select a device from this screen, PROLINK does not know that the selected device has been changed. PROLINK and the programmer will get out of synchronization. Pressing F1 key will give you a brief description of commands available for the programmer. Hitting ESCape key will get you back to the main menu.

3.14. Suspending to DOS

Pressing ESCape key from main menu will suspend the program and invoke a second command processor COMMAND.COM. In this second command environment you can execute any program that you can normally execute. While you are in the second command processor, if PROLINK receives any character from the RS-232 line, it will print out "PPP" at the lower right hand corner of the screen to notify you about the reception. This feature is useful when you are programming a large EPROM which takes several minutes. While the chip is being programmed, you can be using your PC for other purposes.

4. LIBRARY ID CODES

Each device library consists of a data file (file extension .DB). The data files conform to the naming convention:

TTTMMM_D.DB : Device library

where TTT = the device type. All devices are classified into 5 device types:

- EEP : Electrically Erasable PROM's
- EPR : UV Erasable PROM's
- MIC : One chip microcontrollers with on board EPROM's
- PLD : All Programmable Logic Devices
- PRM : PROM's

where MMM = 3 character manufacturer name

The DOS DIR command may be used to establish which libraries are available.

4.1. Device Codes

Each device contained in a device library is identified by a 5 digit code. This code is assigned to a device by LDI which uniquely identifies the programmable device.

5. NOTES FOR GANGPRO USERS

Since not all Gangpro operations can be invoked from the RS-232 com line, some features on Prolink will not be available.

For example:

Blank Check, Verify Device, Checksum Device and Load Device operations cannot be invoked from Prolink. Please refer to Gangpro User's Manual on how to invoke these operations.

5.1. Programming on Gangpro Using HEX file

Gangpro can accept Intel or Motorola HEX formatted files. This operation can be done one of two ways:

1. Press 'P' for Program Device from the main menu. Prolink will display the files in the 'current working directory' and you can choose one of the HEX files to download and program. The file chosen must be either Intel or Motorola format.

2. Press 'R' for Read Formatted File from the main menu. Then choose either Intel or Motorola format. Prolink will now display the files in the 'current working directory' and you can choose one of the files.

5.2. Using Prolink's full screen editor

You can upload data in the EPROM (which is installed in the master socket) to the RAM in your PC and display it on the full screen editor. This operation can be done by pressing 'I' for edIt PC RAM Menu from the main menu and then pressing 'U' for Upload to PC RAM option. When the operation is complete, main menu will be displayed. Then press 'I' and 'E' to invoke the full screen editor. All changes made are only done in the PC RAM. Pressing F10 will quit the editor and will return to the main menu.

To save the data in the PC RAM, press 'I' and 'W' to write the PC RAM into a file. Select the format that you want and enter the file name when asked. Press enter key to select the default upload address (0).

Downloading from PC RAM directly to Gangpro is not supported in this version. Therefore, after modifying the data using the full screen editor, you must save it as a file and then select that file to program.

6. NOTES FOR PALPRO 2X USERS

If you are using Palpro 2X or PLM-2 (with Prompro 8X) firmware version lower than 3.0 the following note should be read.

If Blank Check operation is performed on a non-blank chip, Palpro 2X/PLM-2 non-blank location errors one at a time waiting for either a space character or a return character after displaying each error. In this situation, press Space bar to see the next error. Or press the Enter Key (regardless of where the highlight is - now operation is in progress and pressing Enter Key will not execute another operation) to end the operation.

7. QUESTIONS ?

Q - How do I know from the main menu that communications is working ?

A - Press space bar. If you see the prompt (usually asterisk '*') it's working. If not go to Utilities, Programmer setup option to change the communications parameters such as baud rate.

Q - How do I use the full screen editor ?

A - What do you want to edit ? Already programmed EPROM (PAL) or a HEX (JEDEC) file ?
- An EPROM
  - 'Select device' from main menu (2 pass process - choose library first and select device in that library)
  - 'Load device' from main menu (this transfers from chip to programmer's RAM)
  - go to 'edIt PC RAM menu' from main menu and select 'Upload to PC' option
  - go to 'edIt PC RAM menu' from main menu and select 'Edit PC RAM' option.

- HEX (JEDEC) file
  - 'Select device' from main menu (2 pass process - choose library first and select device in that library)
  - go to 'edIt PC RAM menu' from main menu and select 'Read file into PC RAM'
  - go to 'edIt PC RAM menu' from main menu and select 'Edit PC RAM' option.

Q - If I suspend out to DOS, how do I know if the programmer is sending something to me ?

A - As soon as a character is received, you will see blinking "PPP" at the lower right hand corner of the screen.

Q - If I suspend out to DOS will I loose any message that was sent back from the programmer ?

A - There is a 2 k-byte (2048 bytes) buffer for receiving data from RS-232 line. That should be enough for all messages. Any incoming message will be displayed in message window when you get back to PROLINK.

Q - How do I make sure that device selected on the programmer is the same as on PROLINK ? Out of synchronization can be dangerous !

A - Press these keys in sequence from main menu:
"a" "s" "return key"
Currently selected device on the programmer will be displayed. Hit ESCape key and check right hand side of the main menu screen. Currently selected device on PROLINK is

displayed.

Q - How do I change the programmer selected on PROLINK ? It keeps coming up with wrong programmer.

A - From main menu go to 'utilities' and then 'programmer setup'. Hit enter key. Use up/down cursor keys to move highlight block to the desired programmer and hit enter key. After that use up/down cursor keys again to move highlight block to 'Update' and hit enter key. When it asks you if you want to make it permanent, press 'y'. That will do it. Your new configuration will be saved on a file called PROLINK.CFG.

Q - How do I change the communication parameters such as baud rate, and perhaps make it permanent and save it on the disk?

A - Please read the above answer. Instead of changing the programmer, change the baud rate (or anything else).

A
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checksum device, 9
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select data bits, 4
select device code, 4
select library name, 4
select parity, 3
select programmer, 3
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CONV02: Intel Extended Record Converter

This utility program converts an Intel HEX file which contains an extended record (record type = 02) into one or more Intel HEX files without the extended records. It will create up to 16 different files with each containing data for a 16 bit segment address space. File names will be of the form:

sXXXX.HEX

where s identifies the segment number.

For example:

0XXXX.HEX contains data for segment 0.
1XXXX.HEX contains data for segment 1.
.
.
FXXXX.HEX contains data for segment F.

If the above mentioned files (sXXXX.HEX) already exists in the directory, CONV02 will erase and write over them without any notice.

The usage of this program is:

CONV02 <file name>

where <file name> is the input Intel HEX file which contains an extended record.

HOW TO RUN TEST-VECTORS USING PROLINK

Palpro-2X/PLM-2 firmware version 3.11 supports the execution of test-vectors. To execute, the command "Z" must be sent through RS-232 followed by the JEDEC file containing the test-vectors. From the main menu of Prolink, the following sequence of key strokes must be pressed:

"A" "Z" ESCape "R" "J"
then choose the JEDEC file using the arrow keys and press the enter key.

At this point Palpro-2x/PLM-2 should be executing the test-vectors. Prolink's message center should say "Downloading JEDEC File". When test-vector execution is completed, error messages, if any, will be printed in the message window.

Download Parameter Editor
(Accessed via PC Ram Editing Menu
\Read File into PC Ram)

This feature allows flexibility in the downloading of files. Factory defaults are set to download an 8 bit file with the the starting address at 0000h, ending address set to the last location of the device selected, and both nibbles sent. These defaults allow a single eprom to be programmed from a file. Make the appropriate changes when downloading custom files or other than 8 bit wide files.

Download Parameter Editor

# of devices in set . .	1
current device	0
start file address . .	0
end file address . . .	fff
start device address .	0
nibble to download . .	2

1. # of devices in set: This is the number of devices whose widths sum up to the width in the hex file. For example: If a 16 bit hex file and two 8 bit chips are being utilized then the number of devices would be "2".

2. current devices: This is the current byte number that is being downloaded (low byte=0, high byte=1).

3. start file address: All data in the file before this address will be ignored.

4. end file address: All data in the file after this address will be ignored.

5. start device address: Data will be loaded into the device starting from this address.

6. nibble to download: This setting determines which nibble or nibbles will be downloaded (low nibble=0, high nibble=1, both nibbles=2).

The following is an example of set/split programming of a 2764 file split into two 2732 EPROMs.

1. Select the appropriate device (ie: 2732).
2. Select "Edit PC RAM" command from Main Menu.
3. Select "Read file into PC RAM" command.
4. Select proper file format (Intel,Motorola,ASCII).
5. Select the file to be downloaded from the directory.
6. Select the number of devices in the set (2).
7. Select the current device (0).
8. Select "start file address" (defaults to 0).
9. Select "end of file address" (defaults to end of device address).
10. Select "start device address" (defaults to 0).
11. Select "nibble to download" (2).
12. Press F10 when done.
13. File will be loaded into the PC RAM.
14. Select "edIt PC RAM menu" from Main Menu.
15. Select "Download to programmer" command.
16. File will be downloaded to the programmer.
17. Program the first device of the set.
18. Repeat steps 2 thru 17 for programming the remaining devices of the set. Change step 7 for the next device (0 to 1).
19. End of programming.